

Locks and Dams 2-3-4, Monongahela River (Lower Mon)

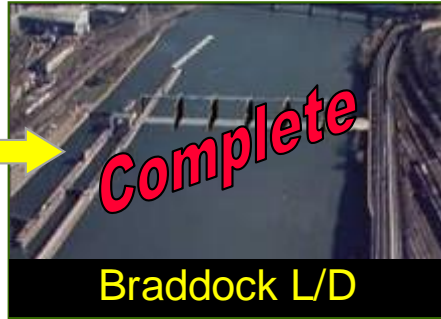
Bottom Line Up Front

- ✓ Current Schedule: **On Schedule**
 - ▶ **March 2023** (Early Project Operational, 90% benefits)
 - ▶ January 2024 (Early Project Complete)
- ✓ Current Cost: **On Budget**
 - ▶ TEP – Total Estimated Price, assuming efficient funding, at **\$1.12 B**, **\$1.23 B** including all contingencies.
- ✓ Keys:
 1. \$82M was received thru FY 2017 work plan.
 2. River Chamber Completion Options 1 and 2 awarded in FY 2017.
 3. Pool 3 Dredging contract awarded in FY 2017.
 4. FY 2018 & FY 2019 President's budget = \$0, high potential for cost and schedule growth.
 5. Continue to investigate alternatives to reduce the project's critical path.
 - Revisiting construction restrictions
 - L/D 3 removal contract performance period

Lower Mon - Project Overview

Pre-Project Condition

Post-Project Condition



Major Project Features

- New Dam at Braddock
- New Locks at Charleroi
- Dredging
- Removal of Locks and Dam 3
- Relocations

Financial

- 902 Limit: \$1.76 Billion
- Current Estimate at Completion \$1.2 Billion, including contingencies ^{*1}

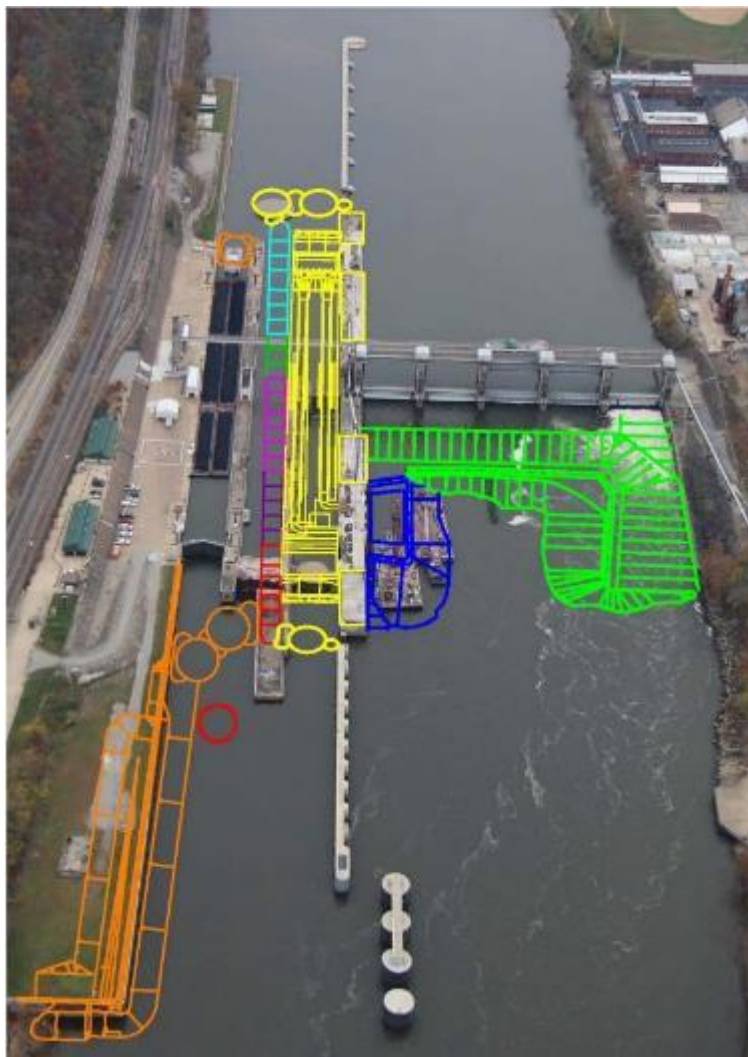
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Lower Mon - Project Schedule

Major Feature Construction	Last Reported Completion (Mar 2018)	Revised ^{*1}
Charleroi M22-M27	FY 2020	
Charleroi Dam Stilling Basin	FY 2021	
Charleroi River Chamber Completion (RCC)	FY 2023	
Dredging Pool 3	FY 2020	
Relocations	Variable	
Lock and Dam 3 Removal	FY 2023	

*1 – Assumes receipt of FY 2018 capability

Lower Mon – Charleroi Ongoing / Pending Construction Plan



Description	Last Reported Completion	Current Completion (FY18 Work Plan)	Current Completion (No FY18 Work Plan)	Previously Planned Award	Current Planned Award	Option Expires	% Complete
M22-M27	2020	2020	2020	Completed	Aug 14 A	NA	58%
RCC Base	2023	2023	2019	Completed	Sep 15 A	NA	88%
RCC Opt 1	2023	2023	2027	Completed	Aug 17 A	30 Sep 17	7%
RCC Opt 2	2023	2023	2027	Completed	Aug 17 A	30 Sep 18	4%
RCC Opt 3	2023	2023	2027	Nov 17	FY 18 See notes	30 Sep 18	NA
RCC Opt 4	2023	2023	2027	Dec 18	Aug 19	31 Mar 20	NA
RCC Opt 5	2023	2023	2027	Nov 20	Sep 20	31 Mar 21	NA
Stilling Basin	2021	2021	TBD	Sep 18	Sep 18	NA	NA

Notes:

- RCC – River Chamber Completion
- RCC Option 1 & 2 awarded in Aug 2017
- Risk informed RCC completion is 2027
- RCC Option 3 at risk
- Stilling Basin at risk

- Remaining project features not shown on this slide:

- Dredging Awarded Sept 2017
- Pool Clearing (FY21 planned award)
- Lock and Dam 3 Removal (FY21 planned award)
- Relocations
- Dredging T.O. at risk

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Charleroi Construction Images



1 - River Chamber Completion Contract Dewatered M2-M6 Coffebox
2 - M22-M27, Installation of Socketed King Piles for M23-M24 Coffebox

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Locks and Dams 2, 3, and 4, Monongahela River, PA

Current Project Estimate^{*1}: \$1.23B (\$2.76B)	ARRA	CG	IWTF	Total
Allocations through FY2013:	\$68,402,740	\$244,839,146	\$244,839,152	\$558,081,038
FY14 Allocation:	\$0	\$36,336,500	\$36,336,500	\$72,673,000
FY15 Allocation:	(\$141,537)	\$28,015,000	\$28,015,000	\$55,888,463
FY16 Allocation:	NA	\$29,450,000	\$29,450,000	\$58,900,000
FY17 Allocation:	NA	\$41,005,000	\$41,005,000	\$82,010,000
FY18 Budget:	NA	\$0	\$0	\$0
Total Allocations to Date:	\$68,261,203	\$379,645,646	\$379,645,652	\$827,552,501
Remaining Balance:		\$203,141,253	\$203,141,247	\$406,282,499
Remaining Balance Change From Last Meeting:				\$ 0

Changes: May 2018 project cost update reflects a cost increase of \$13.8M. The risk informed estimate accounts for a reduced dredging cost, a more informed risk analysis associated with the RCC contract, and applying risks previously included as an overall project risk to specific project features.

Funding Overview

- Original Authorized Cost: \$556M
- 902 Limit: \$1.76B
- ARRA Funding (FY09-FY15): \$68.3M
- Engineering & Design Cost: **\$694M^{*2}**
- Supervision & Admin Cost: **\$183M^{*3}**
- Mitigation: \$12M
- Fully Funded Estimate: **\$2.76B**

Next Steps

- Preparing Stilling Basin package for Award – FY18 (September)
- Award Dredging Task Order #2 – FY18 (August)
- **Award RCC Option 3 Award – FY18 (September)**

Current Status of the Project

- Charleroi M22 – M27 Construction – behind schedule – not impacting project completion
- Charleroi RCC Construction – **1% behind** schedule

*1. Total Project Cost update – May 2018. Cost for 90% of project benefits increased from \$1.22B to \$1.23B, rounded. Total project cost increased from \$2.73B to \$2.76B.

*2. \$694M includes all Engineering & Engineering During Construction, including \$473M for the Charleroi Land Chamber, \$378 M of which is inflation.

*3. \$183M includes all construction contract Supervision and Administration, including \$120M for the Charleroi Land Chamber, \$102 M of which is inflation.

Locks and Dams 2, 3, and 4, Monongahela River, PA

Schedule of Remaining Work	Design Initiated	Contract Award	Construction Complete *2	Project Benefits*3	Capitalized Cost Closeout*3
Charleroi River Wall	1-Oct-95	27-Sep-04	30-May-16	2023	2025
Charleroi Emptying Basin	1-Oct-95	30-Sep-13	11-Nov-15	2023	2025
Charleroi River Chamber (M22-M27)	1-Oct-95	15-Aug-14	FY 2020 S	2023	2025
Charleroi Dam Stilling Basin	1-Oct-95	FY 2018 S	FY 2021 S	2023	2025
Charleroi River Chamber Completion	1-Oct-95	16-Sep-15	FY 2023 S	2023	2025
L/D 3 Removal	2020 S	2021 S	FY 2023 S	2023	2025
Dredging	1-Oct-95	29-Sep-17	FY 2020 S	2023	2025
Municipal Relocations *1	1-Oct-95	Multiple	Multiple	NA	2025

- * 1: To complete all municipal relocations, multiple relocation agreements are required.
- * 2: Dates are achievable based on the most efficient funding profile (early schedule).
- * 3: Project benefit and close out dates are based on the most efficient funding profile & breaching of Dam 3. Early contract completion for Dam 3 removal extends into 2023.
- 4: River Chamber Completion (RCC) Option 1 and Option 2 were awarded in August, FY 2017.
- 5: Charleroi M22-M27 Construction is behind schedule but there is currently no impact on receiving project benefits.

Actual

"S"= Scheduled

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Lower Monongahela River Project

Time and Cost Scorecard



Expenditures

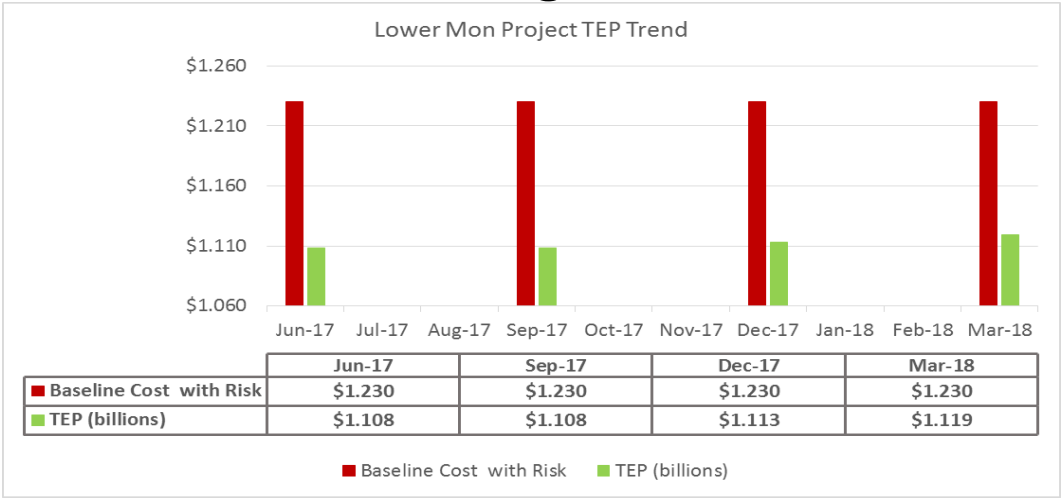
	No Contingency	Contingency Included	31 Mar 18
Planned (BCWS)	\$748.6M	\$684.2M	
Earned (BCWP)	\$659.0M	\$694.1M	
Actual (ACWP)	\$689.9M	\$689.9M	
	CPI = 0.96	CPI 1.01	

BCWP: Reports the value (based on % complete) of the work performed to date.

Target:
Actual as compared to Planned: (<1% = Green); (>1% and <3% = Yellow); and (>3% = Red)

Values shown reflect project sunk cost of \$550.6M thru FY 2014.
EAC = \$1.12B (nc) TPC = \$1.23 B

Budget

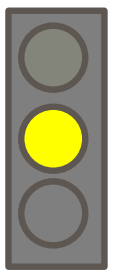


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Schedule

(Baseline)/(Current Early) 31 Mar 18

Operational (Realize over 90% of project Benefits) 2027 / 2023
Project Complete 2029 / 2028



- FY 18 Work Plan funding requested
- Uncertainty of FY 18 funding is a concern

Major Activity Schedule

Activity	Baseline	Current
RCC Option 3 Award	Nov 2017	30 Sep 2018*
Dredging Award T.O. 2	30 Sep 2018	30 Sep 2018*
Stilling Basin Award	30 Sep 2018	30 Sep 2018*

*Requires Work Plan Funding



Discussion

Aerial view of Charleroi Lock Construction



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